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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,658

10/04/2006

Takayuki Takeuchi

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53148

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12/17/2008

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EXAMINER

MONTALVO, EVA Y

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

12/17/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/599,658	TAKEUCHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eva Montalvo	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 8-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/04/2006, 11/27/2006, 01/03/2007</u> .                      | 6) <input type="checkbox"/> Other: _____                          |



**DETAILED ACTION**

1. This Office action responds to the election filed on 11/03/2008.

***Election/Restrictions***

2. Applicant's election without traverse of Species B, reading on claims 1-7 filed on 10/04/2006 is acknowledged and entered into the record. Claims 8-12 are withdrawn from further consideration pursuant to 37 CFR 1.142 (b), as being drawn to the nonelected group.

***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "FIELD-EFFECT TRANSISTOR WITH SEMICONDUCTOR NANOWIRE-CHANNEL REGION.

***Claim Rejections - 35 USC § 102 / §103***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Initially, and with respect to claim 1, note that a limitation in a claim with respect to the manner in which a claimed device is intended to be used does not differentiate the claimed device from a prior-art device if the prior art device teaches all structure limitations in the claims and the functional limitation are found to be inherent in the prior art device. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997); *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). See *Hewlett-Packard Co. v. Bausch & Lomb Inc.* and the related case law cited therein which makes it clear that it is the final product per se which must be determined in a device claim, and not the patentability of its functions (909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)). As stated in *Best*,

Where the claimed and prior art product are identical or substantially identical in structure or composition, a prima facie case of either anticipation or obviousness has been established". *In re Best*, 562 f.2d 1252 1255, 195 USPQ 430, 433 (CCPA 1977).

8. **NOTE that the applicant has burden of proof** once the examiner establishes a sound basis for believing that the products of the applicant and the prior art are the same. See *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

9. Claims 1-7 rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Duan (cited in IDS).

Duan discloses a field effect transistor (see Fig. 2) comprising a semiconductor layer (100), a source electrode (202) and a drain electrode (206) electrically connected to the semiconductor layer, a gate electrode (204); the semiconductor layer comprising an organic semiconductor material and a plurality of thin wires (300) made of an inorganic semiconductor(see [0158], [0163], and [0129]).

10. As to claims 2-7, Duan discloses a transistor, where the thin wires are connected to at least one electrode selected from the group consisting of the source electrode and the drain electrode via the organic semiconductor material (see Fig. 2); both the organic semiconductor and the thin wires function as a p-type semiconductor material (see [0149] and [0150]); the semiconductor layer is formed in stripes parallel to a direction connecting the source and drain electrode (see Fig. 2); an average diameter of the thin wires is 100 nm or less (see [0127]); the thin wires are oriented in a direction connecting the source electrode and the drain electrode (see Fig. 2); and the thin wires are grown from at least one electrode selected from the group consisting of the source electrode and the drain electrode (see Fig. 2).

11. In reference to the language claimed in claim 1, referring to the function of the device, it is noted that Duan shows all aspects of the field-effect transistor device according to the instant invention and that a gate electrode for applying an electric field to the semiconductor layer is

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function that does not affect the structure of the final device. Furthermore, device of Duan is capable of performing the claimed functions. For instance, a charge applied to the gate electrode will generate an electric field near the semiconductor, hence applying an electric field to the semiconductor layer.

12. As to the grounds of rejection of claims 1-7 under section 103, see MPEP § 2112, which discusses the handling of functional language in the claims and recommends the alternative (§ 102/§103) grounds of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Montalvo whose telephone number is (571)270-3829. The examiner can normally be reached on Monday through Thursday 7:30-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marcos D. Pizarro-Crespo can be reached on (571)272-1716. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eva Montalvo  
Patent Examiner  
Art Unit 2814

/Marcos D. Pizarro/  
Primary Examiner, Art Unit 2814